Spring 2022 **BILD 1—The Cell**

Instructor: Jessica Rusert (she/her)

E-mail: jrusert@ucsd.edu (Include BILD 1 in the subject line)

Scheduled Lecture Time: Coo MWF 2:00-2:50 pm; Pepper Canyon Hall 106

Doo MWF 3:00-3:50 pm; Pepper Canyon Hall 106

Office Hours: Tuesday 3-4pm (starting Week 2)

I reserve the right to make changes to this syllabus as needed throughout the course. You will be notified of any changes. Be sure to allow Canvas notifications so you get announcements immediately as I will post announcements often throughout the course.

Course Learning Objectives:

By the end of this course, you should be able to:

1. Relate the structure of organelles/molecules to their cellular function.
2. Diagram how energy is produced and consumed in the cell.
3. Describe how biological information is stored, expressed, and regulated.
4. Explain how traits are inherited and how mutations arrive.
5. Increase your understanding of your own learning (metacognition), including recognizing what topics are easy or difficult for you to learn, learning what study strategies work best for you, and seeking help from instructors and colleagues at appropriate times.

Overall Philosophy

The teaching team and I know that many students have found learning during these uncertain times difficult, but **we will do our best to support you**. As the quarter progresses, the IAs and I will use your feedback to make adjustments. Please bear with us as we face any challenges that arise together!

I believe that **learning about biology is personally advantageous and empowering**. The content you learn here should not simply be viewed as required to earn a certain grade or as a step toward a degree. The knowledge you learn should also allow you to **understand situations that might arise in your life** and aid you in **helping the people in your family and community thrive**. In this course you will learn basic knowledge about the make-up of all living things and how this impacts health and disease of people and other organisms. But then will we ask you to **go beyond memorization** to **deeply understand** the material and **apply knowledge to new examples.** For example, when we talk about cancer, we might use skin cancer as an example in a problem set but ask you to apply the concepts to liver cancer on an

exam. That way, if someone in your life develops breast cancer, you will already have had practice integrating the fundamental concepts you learned in BILD 1 with information about a particular cancer, which will hopefully allow you to better help them understand their disease and treatment.

I also believe that **everyone can learn biology and be a biology person** and that students are often the best resources in **helping each other grow.** Therefore, I have tried to build in places where you will engage with your fellow students **as a community of biologists.** Some of you might find such engagement difficult at first and some of this engagement is optional. However, it becomes easier with practice so I encourage you to make the most of these opportunities. Also, if you go on to have a career that involves biology in some way, for example as a researcher, healthcare professional, or drug developer, you will spend a great deal of your time communicating science. Through interacting with each other verbally and composing your ideas in writing, you can practice the communication and leadership skills you will need in such careers.

Lecture Details:

Attending lecture in-person is *optional,* though highly encouraged so you can make full use of the opportunities to engage with the material and ask questions in real time.

Lectures will be podcast and appear in the Media Gallery automatically (with unhelpful titles and the date) roughly 2hours after each class is over. So, by roughly 4-5pm MWF there should be at least one podcast posted from the 2pm lecture. I will update the automated title of each podcast as time permits. Both lectures will cover the same material and will stay on the same time-line so you can watch either podcast.

Lecture slides will be posted in each week's module (on the Home page) the night before, or at the very latest by noon each day.

Lectures and Assignments:

Week	Lecture Date	Lecture(Sections Activities)	Assignments Released (Due Date by 11:59pm; bolded due that week, regular due the following week)
1	Mar 28	Intro to Course	Section Activity Week 1 Course Survey (Sat 4/2) Syllabus Quiz (Sat 4/2) Lecture Quiz Week 1 (Sat 4/2) Homework 1 (Tues 4/5)
	Mar 30	Topic 1: Chemistry	
	Apr 1	Topic 1: Chemistry	
2	Apr 4	Topic 2: Macromolecules	Section Activity Lecture Quiz Week 2 (Sat 4/9)
	Apr 6	Topic 2: Macromolecules	

	Apr 8	Topic 3: Cell Structure	Homework 2 (Tues 4/12)
3	Apr 11	Topic 4: Membranes & Transport	Section Activity Lecture Quiz Week 3 (Sat 4/16)
	Apr 13	Topic 4: Membranes & Transport	
	Apr 15	Topic 5: Metabolism	
4	Apr 18	Exam 1: Topics 1-3	Section Activity Lecture Quiz Week 4(Sat 4/23) Homework 3 (Tues 4/26)
	Apr 20	Topic 6: Cellular Respiration	
	Apr 22	Topic 6: Cellular Respiration	
5	Apr 25	Topic 7: Photosynthesis	Section Activity Lecture Quiz week 5 (Sat 4/30)
	Apr 27	Topic 8: Cell Communication	
	Apr 29	Topic 9: The Central Dogma	
6	May 2	Exam 2 cumulative but focused on Topics 4-6	Section Activity Lecture Quiz Week 6 (Sat 5/7) Homework 4 (Tues 5/10)
	May 4	Topic 9: The Central Dogma	
	May 6	Topic 10: Gene Regulation	
7	May 9	Topic 11: Mutations & DNA Replication	Section Activity Lecture Quiz Week 7 (Sat 5/14) Homework 5 (Tues 5/17)
	May 11	Topic 11: Mutations & DNA Replication	
	May 13	Topic 12: The Cell Cycle and Mitosis	
8	May 16	Topic 12: Mitosis Day 2	Section Activity Lecture Quiz Week 8 (Sat 5/21)
	May 18	Topic 13: Meiosis and Inheritance	
	May 20	Topic 14: Inheritance, Genotypes, and Phenotypes	
9	May 23	Exam 3 cumulative but focused on Topics 7-11 (possibly a bit of Topic 12 from 5/13 lecture)	Section Activity Lecture Quiz Week 9 (Sat 5/28) Homework 6 (Tues 5/31)
	May 25	Topic 14: Inheritance of 2 Traits: Crosses and Dominance	
	May 27	Topic 14: Crosses and Dominance Day 2	
10	May 30	Memorial Day Holiday	Section Activity CAPEs for extra credit if both classes reach 88%! (deadline 8am 6/4) Lecture Quiz Week 10 (Fri 6/3) Week 10 Course Survey (Tues 6/7)
	June 1	Topic 15: Non-Mendelian Inheritance: X-linked Inheritance & More	
	Jun 3	Q&A time – via Zoom. You must come with Questions!	
	June 4	**Final (Cumulative) 11:30am – 2pm**	**Cumulative**

Contacting Me and Piazza Discussion Boards for Questions:

Emails directed to me, Dr. Rusert, should **focus on personal, tech (but not tech support), or course related issues ONLY** (a course related issue could be different deadlines listed in the syllabus versus that on the assignment, you cannot access/submit the homework, etc.). Please ensure that all e-mails include **BILD1** in the subject line as I teach other classes as well. I will usually respond to emails usually within 24 hours, unless you write URGENT in the subject line then I will respond as soon as possible. I regularly check my email during normal business hours (Weekdays ~8:30 am-4:30 pm) when I'm not teaching or holding office hours, but on weekends you may not hear back from me until Monday morning.

For ALL OTHER questions we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, IAs, and myself. I encourage you to answer each other's questions or contribute to a conversation! Rather than emailing content or logistics questions to the someone from the teaching team, please post your questions on Piazza – which you can even do anonymously – by clicking the **Piazza** link in the menu to the left in our Canvas webpage.

For logistics questions, please ensure you have carefully reviewed the syllabus, FAQ (Frequently Asked Questions), and searched the posts in Piazza before making a new post. The teaching team will be monitoring posts roughly 2x a day, which ensures you get a response faster than if you email one individual directly. If you have any problems or feedback for the developers, email team@piazza.com

Optional Text:

Campbell Biology, 11th Edition by Urry, Cain, Wasserman, Minorsky and Reese (Pearson 2016) ISBN 9780134093413 is optional but recommended. On the BILD1-Spring22 Reading

Schedule.docx Download BILD1-Spring22 Reading Schedule.docxthere are parts of chapters from this textbook indicated that match with the lecture topics. These readings are not required but can be a good resource if you are confused about certain terms/concepts. Buy the "Mastering" level of the eTextbook for additional practice problems, vocabulary help, and study tools.

There are also great free resources online to supplement your learning. You are only required to know what we cover in this class so choose topics based on lecture material. Two great free resources are below, but many others certainly exist.

Khan Academy: www.khanacademy.org

Open Learning Initiative: Introduction to Biology:

https://oli.cmu.edu/jcourse/lms/students/syllabus.do?section=df3e23850a0001dc518491159056b43c

Instructional Assistants (IAs) Sections and Office Hours:

There will be no office hours (OH) held the during the first week of classes. You will get extra credit the first time you attend ANY office hours, with myself or an IA, during weeks 2-5 to encourage you to seek help and engage with the material.

Section	Location	Day & Time	IA	Office Hour	OH Location	Email
C01	HSS 1305	Wed. 6pm	Siddharth Gaywala	Monday 7-8pm	Zoom: 949 7986 2637	sgaywala@ucsd.edu
C02	HSS 1305	Wed. 8pm	Rose Abdelmalak	Tuesdays 2pm	Zoom: 920 9904 6618	rbernaba@ucsd.edu
C03	CENTR 218	Fri. 8am	Ainha Dinh	Thursdays 6-7pm	Zoom	aidinh@ucsd.edu
C04	HSS 1128A	Fri. 1pm	Saya French	Friday 10-11am	Zoom	skfrench@ucsd.edu
C05	CENTR 217A	Fri. 12pm	Xinran Shi	Thursday 2-3pm	Zoom/in-person	xishi@ucsd.edu
C06	TM102 1	Thurs. 7pm	Kyle Nguyen	Fridays 5-6PM	Zoom	kmn001@ucsd.edu
D01	U301 122	Tues. 4pm	Joanna Jain	Tuesday 6-7pm	Zoom	jnjain@ucsd.edu
D02	CENTR 218	Wed. 4pm	Sharon Lau	Thurs 4-5 pm	Zoom	shlau@ucsd.edu
D03	CENTR 218	Wed. 5pm	Danielle Betts	Friday 12-1pm	Zoom	dbetts@ucsd.edu
D04	U301 122	Fri. 8am	Josh Tseng	Wednesday 1-2pm	Zoom	cht092@ucsd.edu
D05	U301 122	Fri. 9am	Josh Tseng		Zoom	cht092@ucsd.edu
D06	HSS 1305	Wed. 1pm	Saya French	Friday 10-11am	Zoom	skfrench@ucsd.edu

Discussion Sections:

Sections begin the first week of the quarter and are mandatory. The content will vary from week to week, however, active engagement with the material in each section is critical to developing your understanding of the lecture material. **A portion of your grade will be based on active participation in section**. You will work in small groups on activities that will be handed in for credit at the end of each section. This is also a great way to connect with fellow students and form study groups.

You are required to attend/participate in your enrolled discussion time to ensure equal student:IA ratio among the sections AND prevent participation and grading from becoming too complicated for the IAs. **However, if you need to attend a different discussion one week due to a scheduling conflict, please contact your IA and the IA for the discussion you plan to attend so they can ensure you get appropriate credit.** Your best 8 of 10 scores will count towards your final grade, so you can miss up to 2 sections. The activities covered in sections will reflect exam style questions so plan to find ways to work through these on your own and get support if you miss a week. If you are ever not given credit when you should have, please reach out to your IA.

Homework:

Homework will be an opportunity to **practice applying the concepts and formulating short answers that fully answer the question and communicate your understanding**. This is a skill that takes practice!! There will be **six homework (HW) assignments** due each week when there are NOT exams that will allow you to work with the lecture material and prepare for the exams. These will be published by Thursday morning each week. HW will be in Gradescope as an ONLINE ASSIGNMENT and will be due the following Tuesday by 11:59pm. The HW following an exam may be slightly longer as it will cover more content. One or two questions will be selected for grading on accuracy and the rest will be graded on effort and completeness. Answers will be posted Thursdays mornings after the HW is due.

I encourage you to work together in study groups to discuss the questions as some are meant to be higher level application. Working with others often helps you better understand the material *even if you are the one explaining the answer*. When working in groups, try not to make the mistake of simply accepting another student's answer and just writing down what they tell you (or worse, copying what's on a shared google doc as that is not using your own words, but instead plagiarism!). You should attempt the problem set prior to going over it with your group then discuss questions or difficulties you had. You will **always** learn more if you have gone through the problem-solving process on your own first.

All answers should be in your own words as this supports your learning the MOST. Once you have completed the assignment **you will paste your answers into an "assignment" in Canvas to check for plagiarism.** Please see "How to Write in Your Own Voice.doc" in the "General Materials" module on the Home page. If you copy other's work or plagiarize resources from online or the textbook you will receive a 0 on that assignment.

Lecture Quizzes:

Each week there will be a lecture quiz due Saturday by 11:59pm, with the exception of Week 10 which will be due Friday at 11:59pm (see the Lectures and Assignments section above). **These are designed to help you review and apply the concepts while getting instant feedback on your thinking,** unlike the homework where answers will be posted ~1.5 days after it is due. You will get 3 attempts. I encourage you to read each question and come up with an answer, then check your notes AFTER you've decided on an answer as this is a more efficient and effective way to learn. After submitting the quiz you will see which questions you got wrong and hints or a description to help you think about why your chosen answer is incorrect. You can repeat this process two additional times and your highest score will be kept.

Generally the last question in each quiz will be a free response question asking you for feedback on the class and you discussion section. These questions are designed to help your IA and me understand what is going well for you and what is not working. **I unfortunately cannot make these anonymous** given they are attached to graded responses for the lecture quizzes. The teaching team is very open to constructive feedback as we want to foster a positive learning environment and ensure the course is effective in helping you learn. Understand however, that sometimes the most successful, **evidence-based teaching strategies** are not necessarily those that all students enjoy. Learning new material is seldom easy and challenging tasks are not always enjoyable, though I hope you feel a sense of accomplishment with every concept you master.

Syllabus Quiz and Course Surveys

There will be a **Syllabus Quiz**, to ensure you know how the course will be run, and a **Week 1 Course Survey**, to better understand the diverse learners in our class, due at the end of the week on Saturday by 11:59pm. At the end of the course there will be a **Week 10 Course Survey** to get feedback on the course as a whole. We value the time you put into feedback throughout the course and take all constructive feedback into consideration.

Exams:

The **exams dates during lecture time** are set and will not be changed so plan your semester accordingly. You will get to drop the lowest of the first three exams, but everyone must take

the final exam. NO MAKE-UPS will be given, even for extenuating circumstances, for the first three exams (***unless you have a OSD exemption***). By allowing you to drop one exam I am building in a safety net for unforeseen circumstances, so plan to take all exams in case you find you cannot take one later in the course. You will likely do better on the final exam if you take all three exams as these are opportunities to practice your learning. For extenuating circumstances that interfere with your ability **to take the final** (i.e. hospitalization), please reach out to me to discuss your circumstances so we can figure out a plan.

Exam 1 - Monday, April 18 covers material from the first three topics.

Exam 2 - Monday, May 2 covers material on topics 4-6.

Exam 3 - Monday, May 3 covers material on topics 7-11.

Final Exam – Saturday June 4th, 11:30am-2pm, cumulative.

Exams will be a mix of multiple choice, select all, and short answer. You will be allowed one U.S. letter size page of paper, front and back with notes during the exam. **You cannot put pictures or lecture slide images on this note page,** though you can draw images yourself. You will present your note page and a photo ID when you hand in your exam.

Drafts of the exams will be given to the IAs to take as if they were a student. Adjustments will be made to wording and length, so the questions are clear and length is doable for you in the time given. You will have roughly double the time it takes the IAs to complete the exam (unless you have an OSD accommodation).

Exams are a way to assess your progress in the class and the class as a whole. Assessments help us understand where students are struggling so that we can address these issues and add in extra support/review. We want this work to be authentic and a fair measure of each student's learning, which is why I have chose to switch to in-person exams over remote exams. Exams grades will not be curved, but instead normalized to the top 5% of the class if the exam was challenging for everyone (for instance students scores in the class go up to 95% only instead of 100%).

Regrades:

If you feel an exam question is INCORRECTLY graded based on the rubric, a regrade request can be submitted through Gradescope within 5 days of grades being posted. The exact protocol will be explained in more detail after the first exam scores are posted. I reserve the right to make changes to the regrades policy if I find that students are abusing/mis-using the option, such as arguing for points that are not part of the rubric. I encourage you to **discuss your questions about the exam answers during any office hours a**fter all students have taken the exam.

Practice Exam Questions:

You will have access to practice exam questions. These will be posted on the Canvas website the week before each exam and you will have access to the answer key. To get the most out of these, you should take them like you are taking the exam, then check your answers afterwards to see what content you are struggling with the most. If you take it without your notes you will get even more out of these questions, which will also help you be more efficient when taking the actual exam. This type of retrieval practice (testing yourself without looking things up or looking at the answers, then learning the correct answers after) has been shown to be a highly effective and efficient learning strategy.

Grading:

There will be no curve at the end of the term. Consequently, you are not in competition with anyone for a grade, so work together! The activities and assignments from which you will earn your grade are designed to **promote your learning and the behaviors that tend to lead to learning**.

Grades will be based on your percentage in the course and assigned a grade by Canvas based on the grading scheme below. There will not be opportunities to receive extra credit or bump up your grade beyond what is offered during the course, even if you email me requesting this. This would not be ethical or fair to your fellow students. Do the work, read through **"How to Study for This Course," "Learn How to Study Using Retrieval Practice," and "Creating Study Guides,"** set aside **study time,** and commit to **finding effective** and **efficient study methods** that work for you to learn the material. Please talk with me if you have concerns as soon as possible.

Discussion Section	10%	Drop the lowest 2 scores of 10
Homework	10%	Drop the lowest 1 score of 6
Lecture Quizzes	9%	Drop the lowest 2 scores of 10
Course Surveys & Syllabus Quiz	1%	
Exams 1-3	42%	Drop the lowest 1 score of 3 --> 2 exams worth 21% each
Final Exam	28%	
Total	100%	

Letter grades are assigned as follows:

97-100% A+

92-96.9% A

88-91.9% A-

85-87.9% B+

81-84.9% B

77-80.9% B-

73-76.9% C+

70-72.9% C

67-69.5% C-

58-66.9% D

<58 F

Late Work Policy:

Lecture quizzes can be submitted past their due date, for a 25% reduction in points each day. They are due on Saturdays at 11:59pm, therefore submitting one on Monday before 11:59pm will be result in a 50% reduction in points. 4 days past the deadline means you will not earn credit but you can use them to test your knowledge if you missed the deadline completely. **DO NOT RETAKE the QUIZ for practice** later on in the course **after the due date if you completed this on time**. You will still be able to view the questions and answers, but if you retake it, Canvas will use your late submission and give you a 0. If you do this by accident please ask you IA to fix the score.

Homework (#1-6), turned in within 24 hours of the due date will be accepted, but with a deduction of 20% of the possible points. You will not be able to submit >24 hours after the due date. **No additional extensions will be offered as I must be fair and equitable to all students in the course.** For extenuating circumstances beyond what the late policy and dropped assignments allow, please reach out to me.

Supplemental Instruction/Study Group

This is support program to help students engage in active problem solving and discussion about course material. This is an optional but extremely useful resource for students in the course, run through the academic achievement hub. See the "Supplemental Study Group Information" module for more information or here: https://aah.ucsd.edu/supplemental-instruction/si-sg-schedule.html#BILD-1

Disability Access:

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) which is located in University Center 202 behind Center Hall. I will get an email wit your AFA and you will be cc'd on this email so you are aware that I indeed received it. From there, for most of your accommodations you must work with the OSD Liaison in the biology department in advance so that accommodations may be arranged. If there is anything specific you feel you need to discuss, please reach out to me via email.

Contact the OSD for further information: https://osd.ucsd.edu/

Academic Integrity:

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. Cheating will not be tolerated, and I will fail any student caught engaging in academic dishonesty. **Any student caught cheating on an exam will receive a failing grade for the course. They may also be suspended from UCSD.** Just because the class and exams are online does not change any policies regarding plagiarism or use of online "tutoring" resources.

Title IX Compliance:

The University recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a member of this community, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. If you want to speak confidentially you may contact the Counseling Center.

The Office for the Prevention of Harassment & Discrimination (OPHD) provides assistance to students, faculty, and staff regarding reports of bias, harassment, and discrimination. OPHD is the UC San Diego Title IX office. Title IX of the Education Amendments of 1972 is the federal law that prohibits sex discrimination in educational institutions that are recipients of federal funds. Students have the right to an educational environment that is free from harassment and discrimination.

Students have options for reporting incidents of sexual violence and sexual harassment. Sexual violence includes sexual assault, dating violence, domestic violence, and stalking. Information about reporting options may be obtained at OPHD at (858) 534-8298, ophd@ucsd.edu or http://ophd.ucsd.edu. Students may receive confidential assistance at CARE at the Sexual Assault Resource Center at (858) 534-5793, sarc@ucsd.edu or http://care.ucsd.edu or Counseling and Psychological Services (CAPS) at (858) 534-3755 or http://caps.ucsd.edu.

Students may feel more comfortable discussing their particular concern with a trusted employee. This may be a student affairs staff member, a department Chair, a faculty member or other University official. These individuals have an obligation to report incidents of sexual violence and sexual harassment to OPHD. This does not necessarily mean that a formal complaint will be filed. If you find yourself in an uncomfortable situation, ask for help.

CLASS STATEMENT OF VALUES

Below are the values I expect each student in this class, IAs, and myself to uphold throughout the quarter. Acting according to these values ensure we will foster a collaborative and supportive learning environment.